



Department of Neighborhood Development

Neighborhood Housing Development Division

Design, Construction and Open Space Unit

RESIDENTIAL DESIGN STANDARDS

Rehabilitation Projects

July 2002

INTRODUCTION

DND has developed design standards for the rehabilitation of existing buildings to ensure that all projects conform to current applicable regulations, and to promote cost effective, quality design. For each project reviewed by DND the goal is to achieve the highest quality product within the cost constraints of the project. The standards are based upon regulatory requirements imposed by the Department of Housing and Urban Development (HUD), under the State HOME program and CDBG Funding for Home-ownership projects.

A major goal of DND design guidelines for rehabilitation projects is to encourage the creation and preservation of designs that is:

- *Compatible with and complementary to the surrounding neighborhood. Every effort should be made to preserve existing architectural detailing such as corbels, dentil molding, columns, cornice detail, window/door pediment, etc. in these renovation projects.*
- *Results in cost effective re-construction.*
- *Results in low maintenance costs and energy efficiency for renters and homeowners.*
- *Uses existing interior and exterior space to enhance the quality of life of the residents and neighbors.*

PROCEDURES:

Upon receipt of a proposed renovation project, DND will conduct a feasibility study in relation to design requirements, guidelines and project cost and subsidy. If requested by the developer, DND design staff will provide design and cost saving technical assistance. See the **DND Residential Design Review Process** document for specific submission requirements.

Note: The developer shall provide DND with copies of the written Standard Form of Agreement Between Owner and Design/ Builder (AIA form B141 or similar document), verifying the commissioning of their architect for the project. This shall be done after the issuance of the Award Letter and with the submission of schematic drawings for Design Approval. The Project Architect shall provide full design services including, but not limited to, architectural, structural, mechanical, electrical, plumbing, civil, and landscaping drawings and specifications. Weekly site visits are required during construction.

GUIDELINES:

Projects shall comply with the design and construction requirements of other agencies including but not limited to the following list. DND will not review projects for compliance with other regulations; developers are required to seek the necessary public approvals for their projects.

- City of Boston Municipal Agencies; including BW/SC Site Plan Guidelines
- Department of Housing and Urban Development;

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- State HOME, HSF, FCF, and LIHTC programs;
- Boston Landmarks Commission;
- Massachusetts State Building Code (latest edition);
- Boston Zoning Code;
- Rules and Regulations of the Massachusetts Architectural Access Board;
- Federal Fair Housing Amendments Act;
- Massachusetts Fair Housing Law;
- Section 504 of the Federal Rehabilitation Act; Americans with Disabilities Act;
- Cost Effective Energy Conservation Standards: Design must meet HUD Cost-Effective Energy Standards in Rehabilitation Projects.

General Energy Consideration:

In existing buildings, individual systems replacement shall be per Energy Star standards even though overall building may not meet 86% efficiency.

Project Reviews:

Projects shall receive Design Approval, Conditional, and Final Construction Document Approvals at respective stages of development of drawings, specifications, and construction costs based on compliance with these standards.

NEIGHBORHOOD COMPATIBILITY

It is a primary concern of DND and residents of Boston that all housing developments fit into and enhance existing neighborhoods. The following building and site design standards explain the key issues that determine neighborhood compatibility.

Street Boundaries:

Use of clear boundaries to define public and private space can create a sense of security and comfort in dense urban neighborhoods. The public (sidewalk edge) boundary of the property shall be defined using fencing, walls, hedges, line of trees, or other landscape material. Use of black vinyl covered chain link fencing is restricted to property edges that do not face a

public street. Fencing material and height should match or complement fencing in the neighborhood.

Parking:

The zoning requirements for off-street parking shall be achieved with parking layouts designed to minimize curb cuts and minimize area of pavement (impervious surfaces). Side by side driveways shall be avoided, and views from the public street edge of parking lots and cars shall be reduced to a minimum. Parking lots for large developments shall be located in the rear where feasible and buffered from adjacent properties with landscaping.

Trees and Landscaping:

Existing mature and healthy trees shall be preserved wherever possible. Existing one and two family dwellings shall have a minimum of one shade tree, (3 inch caliper minimum) planted at the street edge and one flowering tree, (3 inch caliper minimum) planted in the rear yard of each property. Landscaping on larger projects shall be appropriate to the structure(s) and compatible with the neighborhood. Existing rows of trees along a street shall be maintained. All sites shall be landscaped with lawns at all unpaved surfaces and plantings along the existing building foundation at street facing elevations. Landscaping shall compliment the building and maximize use of open space.

Exterior Detail:

Final exterior building elevations shall have exterior details of quality and dimension equal to or better than existing buildings in the neighborhood. Damaged exterior details shall be rebuilt or replaced. Design of new, exterior details shall carefully consider function, materials, and maintenance and may include corner boards, window/door trim, frieze boards, skirt boards, columns, brackets, and railings.

Exterior Building Materials:

New building materials visible from public streets shall be of equal quality or better than materials on existing buildings in the

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neighborhood or on the existing building. Pressure preservative treated wood (except for framing not visible), or mechanical equipment shall not be placed on street facing elevations or other highly visible locations.

Building Entrances:

Natural surveillance shall be used to discourage crime (i.e. entrances, parking, and walkways shall be visible from inside units and the street).

Front Porches:

Front porches for detached 1-3 family buildings are required in neighborhoods where existing houses have front porches. Porches for multi-family projects will be reviewed for neighborhood compatibility.

EXTERIOR LAYOUT DESIGN

PRINCIPLES

Layout of buildings and units shall meet the following general design principles:

- Combination storm/screen doors shall be provided on exterior doors in proposed detached 1-3 family rental units to improve cross ventilation and natural light in living spaces.
- Canopies or roofs or other weather protection shall be provided above all exterior doors where compatible with the existing structure.
- Decks/platforms below small roofs or canopies shall be framed to provide a step down to the deck.
- Sliding doors or windows shall be avoided.
- Front walkways shall connect directly to the sidewalk.
- Walkways shall be provided to secondary exterior doors.
- Side and rear yards shall be enclosed with fencing for detached 1-3 family buildings.
- Mailboxes shall be located at front entrances.

INTERIOR LAYOUT DESIGN

PRINCIPLES

Layout of buildings and units should meet the following general principles:

- Circulation space shall be designed efficiently and kept to a minimum.
- Bathrooms shall not open onto living/dining spaces.
- Coat closets shall be located near dwelling entrances.
- Access to rooms shall be from circulation spaces and not directly through the kitchen.
- Window location shall provide for cross ventilation in rooms (where possible) and through units
- Buildings shall provide visual and noise barriers between public and private spaces. Minimum sound control (STC-50) between units and public hallways or common spaces shall be provided.

LIVABILITY

The following items address issues that have been raised by Boston residents concerning dwelling use, furniture layout, flexibility, future expansion options, and general comfort. Projects should seek to exceed the following minimum standards and to maximize benefits to residents within project budgets. (Exceptions may be made if adherence creates construction difficulty, substantially increases the cost, and/or reduces the number of units.)

Minimum Unit Size:

- 1 Br.** shall be greater than **700 net sq. ft.**
- 2 Br.** shall be greater than **900 net sq. ft.**
- 3 Br.** shall be greater than **1,200 net sq. ft.**
- 4 Br.** shall be greater than **1,400 net sq. ft.**

NOTE 1: For apartments containing an interior stair between two or more floors within a unit, add 50 square feet per floor to the minimum square footage requirements.

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NOTE 2: The minimum square footage may be reduced by up to 100 square feet if 100 square feet of private basement storage per unit is provided.

NOTE 3: Net Square Footage is measured from the centerline of the exterior wall, and includes usable storage space, stairwells and hallways inside the unit, as well as space occupied by interior walls. Net Square Footage does not include basement or attic storage areas, common stairwells, and common hallways. However, Net Square Footage does include 50% of the area under sloped ceilings with greater than 5'-0" clearance and less than 7'-6" clearance.

Minimum Room Size: (Exceptions may be made if adherence creates construction difficulty, substantially increases the cost, and reduces the number of units.)

Use/Room	Min. Area	Min. Dim.
Living Room	150 SF	12'-0"
Dining Room	100 SF	10'-0"
Living/Dining	200 SF	12'-0"
Primary Bedroom	120 SF	11'-0"
Secondary Bedroom	100 SF	9'-0"
Full Bath	35 SF	5'-0"
Hallways	N/A	3'-0"
Coat Closet	6 SF	2'-0"
Bedroom Closets	8 SF	2'-0"
Linen Closets	4 SF	1'-6"
Storage (bsmnt. or other)	30 SF	2'-0"

Minimum Number of Bathrooms: (Exceptions may be made if adherence creates construction difficulty, substantially increases the cost, and/or reduces the number of units.)

- **3 Br. unit** shall have at least **1-1/2 bathrooms.**
- **4-or-more-Br. unit** shall have at least **2 full bathrooms.**

Minimum Kitchen Counter Space (*not to include sink*): (Exceptions may be made if adherence creates construction difficulty,

substantially increases the cost, and/or reduces the number of units.)

- 1 Br. unit** shall have at least **6 linear feet.**
- 2 Br. unit** shall have at least **8 linear feet.**
- 3 Br. unit** shall have at least **10 linear feet.**
- 4+Br. unit** shall have at least **12 linear feet.**

MINIMUM STANDARDS OF QUALITY FOR RESIDENTIAL DESIGN

The following standards are minimum requirements for the use of materials and specifications applied to the rehabilitation of existing structures. This should be read carefully to avoid delays in design and construction of projects.

NOTE: When the phrase or approved equal is used, it means that any substitution of product must be first approved by DND prior to ordering that substitution. A manufacturer's specification sheet is required for comparison of products.

DIVISION 1: GENERAL CONDITIONS

All construction permits and fees necessary for construction including street openings, sidewalk and street repairs, and opening of guaranteed streets are the responsibility of the Developer. The General Contractor is responsible for Certificates of Insurance from all sub contractors. All work shall be warranted for a minimum of one year after substantial completion. General Contractor's insurance against theft and damages is also required. City of Boston project sign is required on all sites.

Construction Site Security:

It is the General Contractor's responsibility to provide site security and to prevent loss or damage from vandalism or theft during construction of projects after hours and/or

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including weekends and holidays. Site security shall be carried as a line item in 'soft costs', under General Conditions, and shall not be a consideration *after* damage or theft has occurred.

Demolition:

The removal of all hazardous materials such as asbestos (ACM's) and lead based paint (LCM's) shall be carried out according to all applicable State and Federal regulations, including but not limited to the Mass. Dept. of Public Health, Mass. Dept. of Environmental Protection and U.S. Environmental Protection Agency, either prior to commitment from DND, or as part of proposed work to be executed. The Developer shall have a complete understanding of the scope of structural repairs required (if any). This shall be reflected in the budget.

Consult with DND De-leading Program for methods to remove paint effectively without eliminating architectural details.

DIVISION 2: SITEWORK

Landscape Features:

A landscaping plan shall include detailed drawings of landscaping, i.e., fencing, planting beds, trees and shrubs (species and sizes) retained and removed, play areas, lighting, seating and all features adding to the aesthetic quality of the site and optimizing the use of the existing property. Planting will not be permitted in July or August unless an appropriate watering/maintenance plan is provided. All plant material shall be warranted for one year.

Landscaping:

Walkways: Provide the following or better: a concrete walk, 4" thick 4,000 psi (air-entrained) w/ broom finish, set on a 6" base of 3/4" crushed stone at all front entrances. Bituminous concrete may be used for rear entrances.

Loam/Grass: Apply clean screened loam as needed to provide a 6" minimum deep planting bed, raked free of stones, 1" or larger, building

debris and other non-organic materials. Apply fertilizer and grass seed and water for 2 weeks, (or through acceptance). Seed shall match sun exposure. Cut as necessary. *Hydroseeding shall be done only with specific DND approval.* When hydroseeding (hydraulic application) new lawns, the acceptable slurry application rate is 1,500 Lbs., dry weight, per acre using a non-asphaltic tackifier. The seed mixture shall match the sunlight exposure, i.e., full sun, partial shade or full shade. All lawns shall be maintained by the GC until after the first mowing. 6" plant cover shall be maintained at sloped areas which are prone to washout.

Planting per existing one or two family house: Plant one shade tree with a caliper width not less than 3" diameter. Plant one flowering tree with a caliper width of not less than 3" diameter. Trees shall be fully staked and shall meet AAN Standards. Plant ten (10) ornamental shrubs, spaced appropriate to their mature dimension (usually not less than 3 FT apart). Watering should continue throughout the first season or 6 months. All plant material shall be allergy reducing.

Street Trees: On street fronts where there is an existing line (3 or more) of street trees either within the sidewalk or along the property line, provide if missing, one tree per 25 FT of street frontage. The tree shall match the existing street trees in type and planting detail. The caliper width shall be not less than 3" diameter.

Hydroseeding:

Hydroseeding shall be done only with specific DND approval. When hydroseeding (hydraulic application) new lawns, the acceptable slurry application rate is 1,500 Lbs., dry weight, per acre using a non-asphaltic tackifier. The seed mixture shall match the sunlight exposure, i.e., full sun, partial shade or full shade. Hydroseed lawns shall be maintained by the GC until after the first mowing.

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Utilities:

Prior to submission to DND, a survey of all existing utilities, including electrical (overhead and underground), water and sewer, gas, telephone and cable shall be done. Coordinate with "Dig Safe" and DPW, N-Star, BW/SC, Keyspan, Verizon, and CCN for layout of existing utilities. It is recommended that all permits for street openings be filed concurrently with the application of building permits. The Developer is responsible for determining the scope of street openings. Costs for opening a "guaranteed street" or opening a street after November 15 and before March 15 shall be the responsibility of the developer. DND shall not be responsible for flowable fill required by the Department of Public Works during cold months.

Public Sidewalks:

The repair of public sidewalk(s), abutting the Property, is the responsibility of the Developer. The developer should review the proposed project with the Public Works Department (PWD) prior to submitting the project to DND, to determine scope of sidewalk repair / replacement. If the public sidewalk(s) is scheduled to be replaced by the Public Works Department, it is the responsibility of the Developer to install a temporary surface meeting ADA and PWD requirements. If the public sidewalk(s) is not scheduled to be replaced by PWD, but is in poor condition, as determined by PWD, then both the curbing and walking surface must be replaced, per PWD specifications. If the public Sidewalk(s) is in acceptable condition, as determined by PWD, repairs must be made, meeting PWD specs to return damaged sidewalk(s) to "like new" condition.

Soil Remediation – 21-E's:

A summary and an accurate estimate of the 21-E soil remediation plan shall be provided. Soil testing and remediation shall be approved by DND prior to execution. This is not a hard cost

contingency item and shall be budgeted as a separate line item. Grading plans are required.

Fencing – Steel or Wood:

All existing one and two family housing units shall be defined, at the street edge, by painted eastern red cedar picket fencing, 42" high, with 4" square capped-posts spaced no greater than 8'-0" O.C. Include one (1) latching gate for each walkway, i.e., two (2) gates for a duplex. Street edge fencing at rehabilitated multi-family housing shall be compatible with the neighborhood. Side yard and rear yard boundaries shall be defined by the use of heavy-duty vinyl-covered chain link fencing at least 48" high, with 2" diameter, black, hot-dipped galvanized posts (painted black) no more than 10'-0" apart and set in concrete footings 8" in diameter and at least 30" below finish grade. Provide top and bottom rails as recommended by manufacturer.

Surface Drainage:

Surface drainage shall be shown with regard to foundation, walkways, property lines and sidewalks on a grading plan. The area around the existing foundation shall be graded away from foundations and compacted to insure proper drainage with emphasis on protecting the abutting properties. Grade changes between existing properties shall be discouraged (mounds, retaining walls, etc.). All surface drainage shall meet the requirements of the appropriate City agencies.

Subsurface Drainage:

Where basements are existing and water infiltration is evident, subsurface drainage shall include a continuous footing drain connected to an engineer-certified subsurface drainage system.

DIVISION 6A: ROUGH CARPENTRY

Porches, Decks, and Stairs:

All exterior dwelling entrances shall have architecturally compatible weather protected

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entries such as canopies, covered porches or recessed alcoves. If existing porches and steps are to be rebuilt or new porches and steps are to be added, the front porch and steps shall be framed in preservative pressure-treated (PPT) lumber with painted pine trim and risers for the steps and fir treads and decking. All wood porches, decks, landings, and stairs shall be enclosed with heavy duty painted pressure-treated lattice and painted pine trim. Porch platforms for typical housing should be a minimum of 6" below the Finish First Floor and for adaptable units, flush with the Finish First Floor. All details shall be architecturally compatible with the existing building and neighborhood. PPT shall be used at all locations where framing joins exterior concrete. Where PPT lumber is used, this lumber shall be arsenic free.

Front Porches: Where porches are compatible with the neighborhood or are being rebuilt on the street side, they shall have 1x4 fir decking, square edge, on the first level and square edge over an EPDM single membrane roof with a gutter, downspouts, and splash guards on the upper levels, D - Select painted pine trim at skirt boards, platform trim, stair risers and column trim and painted fir top and bottom rails and balusters. Porch ceilings shall be bead board. All stairs shall have closed risers.

Rear Porches: 5/4 x 6 PPT lumber may be used only on the first level. The upper levels shall be square edge 1 x 4 Fir, or PPT lumber on PPT sleepers over an EPDM single membrane roof. All fasteners shall be hot-dipped galvanized zinc or stainless steel. All posts to be 6"x 6" square or 6" turned, or greater as per engineering requirements.

Wood Blocking:

Where feasible and prior to insulating and finishing walls, solid 2 x blocking shall be installed where accessories such as grab bars, towel bars, soap dishes and toilet paper holders are to be located. Solid blocking shall also be installed for future installation of grab bars,

adjustable counters, and hardware in adaptable units as required by the MAAB Code re: adaptability.

DIVISION 6B: FINISH CARPENTRY

Exterior Detailing:

The exclusive use of MDO on dormer gables and/or building gables without additional detail is prohibited. The use of details such as decorative applied vents, fish scale shingles, frieze boards or some other contextual treatment, which is compatible with the neighborhood, is required.

Wood Handrails within units:

The use of round handrails and brass wall brackets is limited to basement and attic applications. Wall railings within the unit shall be of a style and size equal to the railing in the free-standing balustrade of the stairway if applicable. Otherwise Brosco # 66 shall be used. All railings must return to wall.

Interior Stairs within units:

All stairs shall be constructed with wooden skirt boards; materials and finish shall match stairs or baseboard trim.

Baseboard Trim:

Where possible new baseboard shall match existing. If new baseboard it to be installed throughout, a minimum of one piece pine molding, equal to Brosco Stock Molding No. 8385 FJP 9/16" x 31/2" (finger- jointed and primed) shall be used for painted applications and No. 8385A for stainable applications. Speed-Base, or approved equal MDF is also acceptable for painted applications.

Interior Door & Window Casing:

Where possible new door and window casings shall match existing. If new door and window casings are to be installed throughout, painted-Pine 11/16"x2-1/2" Brosco 8710 jambs and head and Brosco #8645 painted-Pine window aprons.

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DIVISION 7: THERMAL AND MOISTURE PROTECTION

If the scope of work includes the renovation or addition of bay windows or cantilevers, insulation under these bay windows and cantilevers shall be R-30 minimum.

Basement Insulation:

Fiberglass batt insulation (R-19) shall be installed between floor joists in an unheated basement or existing crawl space. This insulation shall be enclosed in an air infiltration barrier such as Tyvek to prevent fibers from becoming air borne. Drywall may also be used.

In lieu of the above insulation, existing foundation walls may be insulated with R-13 FSK insulation. Installation shall be continuous to the underside of the 1st floor.

Roof and Attic Insulation:

In structures without accessible space in the attic, insulation shall be installed or increased between the ceiling joists (R-38 is required).

In structures with accessible space in the attic, insulation shall be installed or increased between the roof rafters (R-38 is required). Install full rafter bay 1" polystyrene continuous vent from soffit vent to ridge vent at underside of roof decking.

Attic access panels are required in all buildings where access is not provided by stairs. These access panels shall consist of a removable 'tray' containing 2" rigid insulation, R-10, and shall be installed to prevent a 'cold draft' and excessive heat loss and/or gain through this panel. Exterior

Wall Insulation: In structures where the exterior walls are to be insulated, this insulation shall be R-13 fiberglass minimum. Blown-in insulation is permitted where interior surfaces of exterior walls are to remain.

Flashing Materials:

The use of *exposed* anodized aluminum flashing anywhere other than step flashing at dormer and

cheek walls is prohibited. The following list of metals are required for the appropriate locations:

- Chimney and cricket locations; sheet Lead flashing.
- Roof parapet cap flashing, EPDM coping or gravel stop, skylight flashing and base flashing, roof junctures, edges, windows, doors and other exterior openings: lead coated copper, or .050 Ga. factory-painted aluminum flashing.
- Provide continuous roll flashing at shed roofs. Flashing shall be factory painted – no mill finish.
- All windows shall receive pan flashing.

Gutters and Downspouts:

All pitched roofs including porches shall have gutters. Vinyl gutters are not acceptable. Gutters shall be sized per Code requirements, and either seamless. 032 Ga., factory-painted aluminum or match existing, securely fastened with straps of the same material and color as the gutters and sealed per manufacturer's recommendations. Gutters/downspouts shall not discharge into gutters or roof below.

Downspouts shall be sized to required roof surface area to match existing or shall be .027 Ga. rectangular downspouts. Downspouts with elbows, both type 'A' and 'B', shall be securely fastened to the sidewall with straps of the same material and color as the downspouts; with a pre-cast concrete splash guard to divert run-off away from the structure at the base of each downspout or tied into the storm drainage as required. Downspouts shall not discharge at or near entryways or sidewalks.

Asphalt Roof Shingles:

Fiberglass/asphalt roof shingles with a minimum 25-year warranty roof are required.

Ice Damming:

A self adhered bituthene product such as Ice and Water Shield, or approved equal, shall be used on the first 3'-0" of the roof sheathing on all pitched roof applications as well as 3'-0" to both sides of valleys and cheek walls prior to

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installing the metal drip edge, felt paper and shingles. Roof pitches less than 5 in 12 shall be completely covered with the modified bitumen underlayment.

Flat Roofing:

Flat roof applications shall receive fully adhered compounded rubber sheet elastomer (EPDM) single membrane 0.060" thick sheets as manufactured by Carlisle Syntec Systems or equal, installed by certified installer, and applied per manufacturers warranted specifications.

Roof Ventilation:

All pitched roof structures shall have ridge and/or soffit venting to prevent heat build up and premature aging of the roof material. Provide gable vents if required. Design of gable vents shall be approved by DND.

Cementitious Siding:

Cementitious siding material, such as Hardi-plank or Cem-plank is the preferred exterior siding material for re-siding of residential, detached 1-3 family buildings. Various exposures combined with painted-wood and/or synthetic-wood products (such as Trim-Tech or Hardi-trim), cornerboards, door/window casings, soffit/fascia trim, skirtboards, and friezeboards/waistbands, cementitious siding replicates the look of wood siding, and requires less maintenance than wood alone. 5/4 trim shall be used with cementitious siding. Glued/finger jointed/jointed pine shall not be used on exterior. All installation per manufacturer's specifications

Vinyl Siding:

The use of vinyl siding is discouraged. If proposed, vinyl siding starter strips shall be aluminum to ensure a straight/true line. The siding configuration shall be triple three or double four and the thickness shall be .042 minimum, or better, with a 'brushed smooth' finish. Auxiliary accessories shall include inside/outside corners, J-trim and under sill trim pieces. The siding shall be installed over either 1/2" insulating recovery board (w/ nails of

sufficient length to penetrate the sheathing properly) or an air infiltration barrier such as Tyvek. Cornerboards, door/window casings, soffit/fascia trim, skirtboards, and frieze boards/waistbands, shall be either wood or cementitious material.

DIVISION 8: WINDOWS / DOORS

Windows:

Windows in residential detached 1-3 family rehabilitation projects shall be residential quality, vinyl clad exterior wood sash windows with integral screens, fully weather stripped, with sash locks and pulls. High performance window glazing, argon filled (Low-E), is required. Caulk all window and door units with ethylene copolymer caulk, using backer rod (close cell polyethylene Tremco, or equal) as needed. Window shim spaces shall be filled with low expanding foam sealer. Windows shall have architecturally appropriate exterior casings on 3 sides and a protruding sill. Aluminum windows will only be approved where window dimensions are commercial or oversized. Historical District requirements must be met where applicable. Wherever possible, window configuration and size shall conform to that of the surrounding neighborhood.

When directed by the Landmarks Commission to use wood sashes as an element in historical preservation, it is required that those windows be supplied with TDL (true divided light) configuration and not snap-in muntin grilles.

Window Guards:

Window guards shall be installed in housing units where a child age 6 or under will be living.

Fixed Glazing:

The use of fixed glazing shall be limited to inaccessible skylights, walk-in closets and foyer locations where natural light maybe the criteria rather than ventilation, and sidelights and transoms in foyers where security is not an issue. All other situations must be satisfied with operable sash units.

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Entry Doors:

To conform to energy requirements and security issues, and unless otherwise directed by the Landmarks Commission, it is required that insulated, steel entry doors be the accepted entry door unit for both exterior front, exterior rear, and apartment entries in low rise rehabilitation projects. Door design shall be reviewed by DND. To facilitate entry, both the key-in-lock and the deadbolt (1" throw) shall be keyed-alike. A peep hole shall be provided.

All doors, whether exterior or interior shall have a baseboard-mounted stop, Ives or equal, as part of the 'hardware package' to prevent damage to wall finishes. Stop finish shall match door hardware finish.

Storm/Screen Combination Exterior Doors in One and Two Family Homes:

All exterior doors shall be 'embossed', rather than decorative plastic applied molding, to prevent 'sagging' when used in conjunction with storm doors. The use of Harvey 'Carefree' (or approved equal) combination storm and screen doors at entries, front and rear, is required for rental units. Such doors shall be properly sized for the opening and the frame caulked with a phenolic caulking material (color to match).

Egress to Patio or Deck:

The use of Sliding doors to access the exterior is discouraged. Coupled with posing a security issue and probable early failure of the sliding mechanism, alternative methods should be sought. The use of a security bar is required whenever a slider is the DND approved method of egress. Patio/deck doors should step down to allow out-swinging doors to open when snow is present.

DIVISION 9: FINISHES

Sound Attenuating Blankets:

In renovations where possible, sound insulation shall be installed in floors, corridors and party walls between units, with a minimum STC of

50. PVC soil stacks shall be wrapped or the chase packed with approved sound insulation.

Drywall Corner Beads:

Whenever installing metal corner beads on wood-framed partition corners, the practice of using a 'clencher' is not permitted. The metal accessory should be mechanically fastened using 4d galv. box nails or drywall screws.

Floor Finishes:

Linoleum sheet goods shall not be used as a standard floor treatment throughout dwelling units (except as approved by DND). Linoleum sheet goods shall be limited to entryways, kitchens, bathrooms, and Dining Rooms. (Dining Rooms may also be covered with cut pile carpet, with review of sample by DND). To ensure minimum out-gassing and durability, all linoleum shall be equal to Marmoleum. Hallways, Living Rooms and Bedrooms shall receive carpeting. If existing flooring is hardwood, floor refinishing is encouraged.

Carpeting:

Carpeting of approved quality (26 Oz. minimum fabric face weight per square yard), secured with tackless wood-strip fasteners and synthetic jute or foam padding is the standard for unit living rooms and bedrooms. Common stairs and hallways shall have a minimum of 28 oz. carpet and heavy padding or linoleum flooring and vinyl treads and risers.

Bathroom Floors:

In order to ensure minimum out-gassing and durability, the entire bathroom floor shall be either tiled with a floor grade tile, non-slip glazed or unglazed, and include a sanitary base (tile trim piece or cap) at all wall and floor junctures, or linoleum (Marmoleum or equal) with one-piece painted wood or MDF baseboard. Vinyl composition tile is not approved for bathroom floors.

Bathroom Walls:

Though not a requirement, a ceramic tile tub-surround is the preferred choice, particularly in instances where handicap adaptability

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(retrofitting) is an issue. Ceramic tile of at least 4 1/4" square should be installed in Thin-set on a cement backer board. Durock, Wonder-board or other approved equal 1/2" thick glass fiber-reinforced cement tile backer as a substrate, shall be installed with galvanized roof nails per manufacturer's recommendations. The use of MR (moisture resistant) 'green board' drywall is not allowed as a tile backer. The tile shall extend a minimum of 6'-0" above the finish floor, (A.F.F.), complete with all necessary trim pieces and caps, including a soap dish without a grip bar.

Baseboard Trim:

Vinyl cove base shall not be used except on the toe space of kitchen and bath cabinetry.

Kitchen Range Backsplash:

Whenever the area behind the cooking range, is painted gypsum wall board, high pressure laminate or ceramic tile shall be installed and trimmed with stainless steel J-trim.

The laminate shall be as wide as the range, and fit from the underside of the cabinet above or the ducted range hood down to 30" A.F.F.

Interior Paint Schedule:

Paints shall be limited to Benjamin Moore, Sherwin Williams, Pratt & Lambert, Martin-Seymour, Devoe, Reynolds, California or equal quality products applied at the rate specified by the manufacturer. Paint shall be limited to low or no VOC.

Gypsum Drywall – Ceilings: 1 coat of latex-base primer and 1 coat latex-base interior flat (ceiling white) paint. Kitchens and bathrooms shall receive 1 coat primer and 1 coat semi gloss odorless Alkyd enamel. Existing ceilings shall receive stain/mold kill primer. Sand finish ceilings are not permitted in kitchens or bathrooms.

Gypsum Drywall- Walls: 1 coat latex-base primer and 2 coats interior latex-base egg shell paint. Kitchens and bathrooms shall receive 1

coat primer and 2 coats semi gloss odorless Alkyd enamel. Existing ceilings shall receive stain/mold kill primer.

Plaster Ceilings: 1 coat latex-base primer and 2 coats latex-based interior flat (ceiling white) paint. Kitchens and bathrooms shall receive 1 coat primer and 1 coat semi gloss odorless Alkyd enamel.

Plaster Walls: 1 coat latex-base primer and 2 coats latex-based egg shell paint.

Stained Woodwork: 1 coat oil-base interior wood stain and 2 coats satin or semi gloss polyurethane varnish.

Natural Finish Woodwork: 1 coat sanding sealer and 2 coats satin or semi gloss polyurethane varnish.

Painted Woodwork: 1 coat interior enamel undercoat and 2 coats interior semi gloss odorless alkyd enamel.

Ferrous Metal: 1 coat rust-inhibiting (Rust-o-leum or equal) primer, 1 coat interior enamel undercoat and 1 coat interior semi gloss odorless alkyd enamel.

Exterior Paint Schedule:

Painted Wood Finish: 1 coat exterior primer and 2 coats semi gloss alkyd enamel. All new exterior trim and siding shall be back primed.

Transparent Wood Finish: 1 coat oil-base sealer and 2 coats spar varnish.

Zinc Coated Metal: Whenever using galvanized metal, the surfaces shall be cleaned with a non-petroleum-based solvent, removing pre-treatment, oil and contaminants from the surface prior to applying 1 coat galvanized metal primer, 1 coat interior enamel undercoat and 1 coat interior semi gloss odorless alkyd enamel.

RESIDENTIAL DESIGN STANDARDS

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Consult with DND De-leading Program for methods to remove paint effectively without eliminating architectural details.

DIVISION 10: ACCESSORIES

Toilet Accessories:

All full bathrooms shall receive 2-24" towel bars, robe hook, shower curtain rod, toilet paper holder, mirror-front medicine cabinet. Finish shall be polished chrome.

All half bathrooms shall receive 2 towel bars, robe hook, toilet paper holder, and wall mirror. Finish shall be polished chrome.

DIVISION 11: APPLIANCES

All applicable appliances shall be Energy Star rated.

- Range hood vented to outdoors.
- Garbage Disposal, 1/2 HP minimum.
- 30" Gas range with self-cleaning oven.
- Dishwasher.
- Frost-free Refrigerator, adaptable for installation of an automatic ice maker, sized per number of Bedrooms as follows:

1 Bedroom Unit.....14 Cu. Ft. minimum.

2 Bedroom Unit.....18 Cu. Ft. minimum.

3 or more Bedrooms20 Cu. Ft. minimum.

DIVISION 12: FURNISHINGS

Window Shades:

All windows (except basement) shall receive properly sized window shades: fiberglass-coated, vinyl plastic, fire-retardant, fade-resistant roller shades with large diameter cotton cord attached to slat. Mini-blinds are not acceptable.

DIVISION 15: PLUMBING / HVAC

FIRE PROTECTION

Fire Sprinkler Systems:

Drawings of projects consisting of more than three units shall have an approval stamp and signature from the Fire Department.

When designing Fire Sprinkler systems, only in exceptional situations will standpipes and sprinkler piping be allowed to be exposed below

finished ceilings. It is required that all efforts be taken to use concealed pendant type sprinkler heads and trim plates. Soffits and chases may be utilized, but only after review by DND Design Staff.

PLUMBING

Plumbing Fixtures:

(Specifications are for those projects in which the existing plumbing system is being replaced.)

- Insulate *all* hot and cold water supply pipes and *all* heating pipes throughout the structure.
- Take care to seal all floor, ceiling and wall penetrations with approved draft stop material.

The following is a list of minimum standard fixtures, faucets and accessories:

P-1 In Kitchens without dishwashers, the sink shall be a double-bowled, Elkay PSR3322, 33" x 22", 20 Ga. stainless steel unit with four holes or other approved equal; to accommodate a Delta Model No. 400, chrome, single handle faucet with spray attachment or other approved equal. Otherwise, an Elkay PSR2522, 25" x 22" or other approved equal, 20 Ga. stainless steel unit with four holes shall be used.

P-2 Bath Lavatory and faucet; 'cultured marble' integral bowl, front overflow and backsplash.

RESIDENTIAL DESIGN STANDARDS

Rehabilitation Projects

Moen or Delta (2.5 GPM) single lever chrome washerless faucet with aerator, flow restrictor, lift rod and pop-up drain.

P-3 Toilet; two piece close-coupled siphon jet vitreous china (white) 1.6 Gal. flush low consumption, round bowl toilet, 12" rough, or equal with a consumer rating of 70 or above. The toilet rated at 70 by Consumers Report (June '98) was the Universal Rundle Atlas Model # 4079. The toilet shall include a Bemis, or equal, solid plastic closed seat and cover, and a chrome supply and flexible riser.

P-4 Bath tub; 60" x 30" x 14" American Standard, white, 'Americast' enameled steel w/sound-deadening polymer backing, non-slip bottom, chrome plated B/W/O with diverter and strainer and Symmons S96-2X chrome pressure-balancing anti-scald bath/shower valve, or equal, with chrome spout and shower head. Steel tubs are not permitted.

Washing Machine Hook-up:

Laundry hook-ups are required for each unit in One and Two Family residential construction. If a Laundry hook-up is installed within a Unit above living space, a plumbed floor tray shall be provided. For Affordable Units, one, two and multi-family closet space for the washer and dryer should be side by side shall be provided. Dryer power source should be gas rather than electric.

Hose Bibbs:

Freeze-proof hose bibbs, or spigots, must be provided in sufficient number to allow watering of all lawn areas and plantings.

All visible pipe penetrations through walls, floors, and cabinets (including interiors) shall be sealed and covered with escutcheons.

HEATING

Heating Equipment:

(Specifications are for those projects in which the existing heating system is being replaced.)

Provide housekeeping pads under new mechanical equipment.)

Sealed-combustion FHW (Forced Hot Water) System: (At 1 and 2 family – rehabilitation projects)

Provide high efficiency sealed-combustion Burnham Revolution Series, Weil/McLain Gold Series, or equal gas-fired boiler with an A.F.U.E., (Annual Fuel Utilization Efficiency) of 85 or better for gas FHW. Domestic hot water heater shall be an Amtrol, 'Superstor' or equal 40 gal. Insulated Stainless steel storage tank w/ Sparco or equal tempering valve and separate zone valve and/or circulator, Slant Fin 'Fineline 30' or other approved equal hot water baseboard radiation element complete with bleeder valves, cover and trim in accordance with IBRM specifications. System shall be complete and operational prior to occupancy.

Particular attention to location of vent terminations re: walkways and windows must be made for design and Code compliance.

FWA (Forced Warm Air) System:

Provide a high efficiency or hydro-air system to heat warm air. Gas fired boiler shall have an A.F.U.E. (Annual Fuel Utilization Efficiency) of 92 or better. Provide new flue pipe with sections fastened with sheet metal screws as per Code. Provide new supply and return sheet metal plenums, required safety switches, thermostat and all wiring necessary for proper operation. Provide all sheet metal ducting, properly secured with straps, sealed with mastic, according to code on both supply and return with dampening capabilities to each habitable room. All ducts shall be located within the envelope of the house. All grilles and registers shall meet specifications for that particular application, i. e., floor or wall discharge. This system shall be adaptable for A.C.

For Oil-fired applications, all the above, and include a Beckett, Carlin or other approved equal retention head oil burner, 275 Gal. storage tank w / plastic sheathed soft copper supply

RESIDENTIAL DESIGN STANDARDS

Rehabilitation Projects

buried in the floor slab and a required 'kill switch' located in the living area near the basement stairs.

Thermostat Controls:

The use of programmable set-back thermostats is required to promote energy savings.

VENTILATION

Bathroom Ventilation System:

(Specifications are for those projects in which the bathroom ventilation system is being replaced.)

At full bathrooms, install exhaust fan designed for continuous operation such as Panasonic 110 CFM "super quiet" .5 sone fan unit (Panasonic FV08VQ at 2 bedroom units and FV11VQ at 3 bedroom or larger units) connected to the outdoors with 6" insulated duct discharging through a galvanized steel or aluminum wall or roof cap with a back draft damper, insect screen and wind hood. Ducting for kitchen and bath exhaust shall run straight to the exterior and pulled tight without kinks or bends. Controls shall be 'Airtrack Programmer' by Tamarack Technology of Wareham, MA, or equal to boost ventilation by 50%, adjustable from 15 to 60 minutes for bathroom exhaust discharge. All bathroom doors shall be undercut 1/2" to promote required changes throughout.

DIVISION 16: ELECTRICAL

(Specifications are for those projects in which the electrical system is being replaced.)

The electrical components shall include, but are not limited to the following:

- Conveniently located load center with circuit breakers in each unit.
- Front and rear porch lights in one and two family rehabilitation projects.
- Ceiling fixtures in building common areas, entry foyers and unit hallways, stairwells,

kitchens including additional fixture over sink, bathroom ceiling and over mirror, walk-in closets, and basements.

- Hard-wired smoke detectors.
- Telephone jacks in Kitchens, Living Room and all Bedrooms.
- Cable jacks in Living Room and Master Bedroom.
- Switched outlets in Living Room and Bedrooms.
- 3 way switching for living rooms, kitchens, and hallways.
- 20 Amp circuits in Living Room and Master Bedroom for AC units under windows.
- Security alarm system: door and window contacts at lower levels and any easily accessed upper windows and doors.
- High output compact fluorescent light fixtures are lower consumers of electric energy than their incandescent counter-parts.
- All electrical devices at exterior walls and top floor ceilings should have airtight boxes or 'polypans'.
- Attempts at energy conservation re: lighting levels should not sacrifice those light levels, but rather match them, (foot candles or lumens of lighting), to the needs of the areas illuminated.

Public and Common Metering:

In dwellings with two or more units, a separate Public Meter with all common area circuitry shall be provided. Meters and T boxes at exterior shall be mounted on backer boards.

Sub Panel metering:

Whenever running a service line from the Main panel board to a sub panel board, the use of aluminum wire is not permitted. The sub panel shall be fed by a copper conductor with ground.

Lighting:

All lighting shall meet Energy Star requirements.

RESIDENTIAL DESIGN STANDARDS

Rehabilitation Projects

Clothes Closet Lighting:

To provide light in walk-in closets, an external switched, wall mounted, light fixture over door head shall be provided.

Switches:

If the room has one entrance door, one single-pole switch is required. If the room is accessible from two locations, two three-way switches are required. Switches should be located on the knob side of the door, approximately 48" A.F.F. In bedrooms and living rooms, wire half of a duplex receptacle to a switch at the entry door.

Voice and Data Service:

Phone jacks or modem connections shall be installed in the Kitchen, Living Room and all Bedrooms.

FIRE/SMOKE DETECTORS

Smoke detectors shall be hard-wired to comply with the Electrical Code. Additionally, any smoke detector within 20 FT of a kitchen or bathroom shall have a Photoelectric head with a battery back-up to comply with the Fire Marshall's regulation, currently in effect, which shall include a detector in every bedroom. Thus, with battery back-ups, storms and / or black outs will not jeopardize the fire protection provided.